

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
28 July 2005 (28.07.2005)

PCT

(10) International Publication Number
WO 2005/068995 A1

(51) International Patent Classification⁷: **G01N 29/10**
(21) International Application Number:
PCT/NL2005/000021

(22) International Filing Date: 14 January 2005 (14.01.2005)

(25) Filing Language: Dutch

(26) Publication Language: English

(30) Priority Data:
1025267 16 January 2004 (16.01.2004) NL

(71) Applicants (for all designated States except US): **RÖNT-
GEN TECHNISCHE DIENST B.V.** [NL/NL]; Delftweg
144, NL-3046 NC Rotterdam (NL). **TECHNISCHE
UNIVERSITEIT DELFT** [NL/NL]; Julianalaan 134,
NL-2628 BL Delft (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PÖRTZGEN, Niels**
[NL/NL]; Oosterstraat 18, NL-3134 NR Vlaardingen (NL).
GISOLF, Andries [NL/NL]; Ruys de Beerenbrouckplein
1, NL-2613 AR Delft (NL).

(74) Agent: **WINCKELS, J.H.F.**; Johan de Wittlaan 7,
NL-2517 JR Den Haag (NL).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

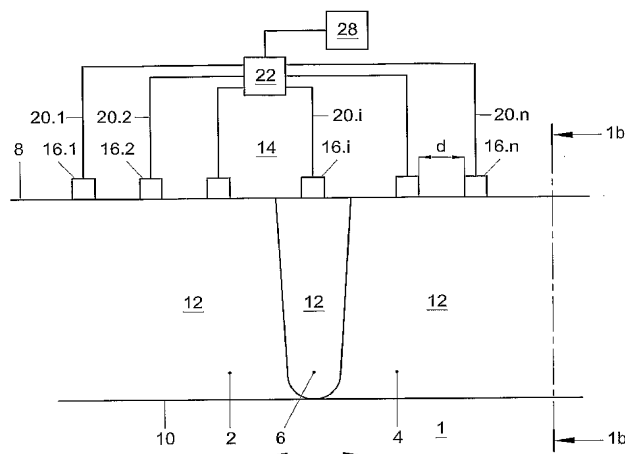
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUS FOR EXAMINING THE INTERIOR MATERIAL OF AN OBJECT, SUCH AS A PIPELINE OR A HUMAN BODY FROM A SURFACE OF THE OBJECT USING ULTRASOUND



(57) Abstract: A method for examining the interior material of an object, such as a pipeline or a human body, from a surface of an object using ultrasound having a frequency of at least 100 KHz, wherein the ultrasound is supplied to the interior material of the object. The reflections and/or diffractions of the ultrasound from the interior material of the object are received using ultrasonic receivers which are acoustically coupled to the surface of the object at positions which are distributed in two dimensions of the surface of the object, at different points in time or not, wherein, with each of the feelers, a receiving signal is generated, wherein the receiving signals are processed in combination in order to determine, according to the principle of inverse wave field extrapolation, where in the interior material of the object reflections and/or diffractions occur.

WO 2005/068995 A1